# IN THE UNITED STATES DISTRICT COURT FOR THE DISTRICT OF DELAWARE

AMPEX CORPORATION,	)
Plaintiff,	) ) C.A. No. 04-1373-KA.
V.	) )
EASTMAN KODAK COMPANY, ALTEK CORPORATION and CHINON INDUSTRIES, INC.,	
Defendants.	) REDACTED
	)

APPENDIX TO DEFENDANTS' ANSWERING BRIEF TO AMPEX CORPORATION'S MOTION FOR SUMMARY JUDGMENT THAT THE QUANTEL PAINT BOX IS NOT PRIOR ART UNDER 35 U.S.C. § 102(a) AND §102(b)

Collins J. Seitz, Jr. (#2237)
Jaclyn M. Mason (#4737)
CONNOLLY BOVE LODGE & HUTZ LLP
1007 North Orange Street
P.O. Box 2207
Wilmington, DE 19899
(302) 658-9141
cseitz@cblh.com
Attorneys for Defendants Eastman Kodak Company
and Altek Corporation

Of Counsel:
William F. Lee
Michael J. Summersgill
Wilmer Cutler Pickering Hale and Dorr LLP
60 State Street
Boston, MA 02109
Tel: (617) 526-6000

S. Calvin Walden Wilmer Cutler Pickering Hale and Dorr LLP 399 Park Avenue New York, New York 10022 Tel: (212) 230-8800

Date: June 13, 2006

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### DPB Software Developments

16/9/81

In addition to PAINT mode there will be GRAPHICS and CUT/PASTE modes. Each will have a separate palette callable to the bottom of the picture, but with the PAINT palette always callable to the top of the picture to allow change of colour and brush size. Each palette will have Paint, Graphics, Cut/Paste control boxes in the same place to allow switching between modes.

It may also be easier to invoke a DISC palette to control access to the DISC or FLOPPY or VIR.

### System

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- Change software to run on TELESOFT processor board.
- 2. Fetch pictures from FUJI disc instead of DDS 880.
- 3. Write primitives to run on internal 68000 µP board.
- 4. Hodify touch tablet primitives to accept 6802µP serial input.
- Eardle 80 character file names including wildcard searches.
- 6. Display filenames on main RGB monitor (using Store II).
- 7. Add an optional keyboard handler to supplement soft-keyboard.

### Paint

- Extend painting to 16 bit and allow much lighter pressures.
   Also possibly allow pressure sensitivity to be adjusted.
- AIRBRUSH by using time-determined brush stamps and very light pressure.
- BRUSH SIZE allow any size of brush by using the size cards to compress a large brush stored on disc.
- BRUSE SHAPE using assymetric compression and rotation allow different brush shapes (e.g. for Italics).
- 5. STAMP allow symbol previously out to be loaded into the brush and stamped onto the picture (e.g. symbols for a weather map). Although this can be done using CUT/PASTE, the STAMP method allows limited pasting on a single store version of the DPB.
- 6. CELL SKETCHING allow an overlay to be drawn into an ext store while viewing an existing picture and then view it while drawing a subsequent new picture.
- MASKING create a mould to protect like masking tape whilst painting.

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- SAVE a control box to save the current picture on disc under sequential names e.g. TEMP 1, TEMP 2, TEMP 3 etc.
- 9. MAGNIFT x 2 magnification of the picture (using the size cards) to allow greater detailing. This routine should be capable of iteration. It will need to make use of temporary files and allow smooth re-insertion of modified magnified area into the original picture.

### Graphics

- GRID (a) Definition by defining a rectangle of any shape and probably orientation.
  - (b) Usage (i) constrains the value returned by the cursor routine for all the Graphics options.

    (ii) may be used either visible or invisible.

    (iii) uses Store I EXT.
- DIRECTED LINES constrains the value returned by the cursor routine to horizontal and/or vertical and/or diagonal displacements only on all Graphics options.
- LIMES, POLIGONS Most make use of "rubber-band" lines. Hopefully
  we can use time duration to distinguish between connected and
  unconnected points.
- CIRCLES, ECLIPSES, ARCS must be easy to drive and reasonably fast in drawing.
- 5. RECTANGLE to allow quick creation of rectangular blocks of colour using Rectangular cursor and fast-wipe.
- FILL the best algorithm is still being derived. It must be ressonably fast (hardware may (?) be able to help).
- 7. TEXT needs to handle several forts of any size and orientation, and used like lettraset.
  Rubber-band lines are drawn in Store II ext. It would be useful if graphics (if a single colour) were built into an extension store, so it may then be either permanently entered or cancelled.

### Cut/Paste

- CUT draw eround an object to define it, by brushing into the extension plane at full pressure. Then fill by hand or:
- FILL auto filling of CUT shape to create a mould. Note: mould
  is stored as a separate file to picture and uses 2 bytes per pixel.
- 3. AUTO-CUT cut a painting from its background colour.
- SEARCH search disc using wildcard and display a composite picture.
   Then allow one item to be chosen for pasting.

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- MODIFY modify a mould by painting in or out.
- PLACE temporary paste Store II onto Store I and scroll it around the picture.
- 7. SIZE fetch paste item to Store II at a particular size.
- 8. ROTATE fetch paste item with a rotation set.
- 9. GROST as PLACE but with only 50°/. pasting.
- 10. FOREGROUND use Store Ext I as a foreground mould.
- 11. GRID/DIRECTION constrain FLACE appropriately.
- 12. PASTE pasta picture where placed.

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13. TEXT MANIPULATION - allow complete words of TEXT to be moved around the picture, rotated etc. before final pasting. Also allow letter spacing to be varied.

EKC 001002168 CONTAINS CONFIDENTIAL BUSINESS INFORMATION Kenley House, Kenley Lane, Kenley, Surrey CR2 5YR, England Tel: 01-668 4151 Telex: 946643 MICRO G

Mr. P.J. Darby, Independent Broadcasting Authority, Crawley Court, Winchester, Hants. 5021 20A 12th October, 1981

Dear Mr. Darby,

## RE: NATIONAL ELECTRONICS REVIEW 1982

Enclosed is the promised article written by our managing director, Richard Taylor, on the subject of "computerised art", for your consideration for inclusion in the 1982 edition of National Electronics Review. Also enclosed are two drawings and eight black and white photographs, all with captions.

Should you have any questions or require additional information, please do not hesitate to contact me.

Thank you for the opportunity to contribute to the Review.

Yours sincerely,

Hugh S. Boyd

Group Public Relations Officer

Enc:

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**B-004** 

# The Art of Digital Techniques

# in the Broadcast Studio

The application of digital techniques in the broadcast studio has changed dramatically the on-air look of television in recent years. The creative possibilties realized by the digital approach are as significant as the changes made possible by the invention of video tape.

Video tape has been around for 25 years but the emergence of digital techniques in the studio is somewhat more recent. In fact, audiences in the U.K. would have first noticed the use of computers and electronic digital techniques creatively to enhance a television programme, during the live coverage of the 1976 Montreal Olympic Games.

The effect shown was to take a television picture from a car following the runner carrying the Olympic torch through the streets of Montreal, reduce this image to the original size and insert the runner over a general picture of the waiting crowds in the main stadium.

From that beginning in 1976 the technique has become commonplace throughout the World. The pioneers for the system, a British Company Quantel Limited, a member of the Micro Consultants Group, were, however, not happy to see the director limited to just a quarter sized picture and accordingly, the Company made the technological leap of being able electronically to vary the size of the picture smoothly and progressively—just like a zoom lens except that no optics are involved. The obvious question of why anyone would want to zoom pictures electronically is simply answered that the technique means that the image can be altered after it has been put onto video tape reducing the time needed in the expensive studio allowing more creative work to be done in the post—production editing suite.

However, the application of such equipment is not just restricted to zooming, for once the picture size can be changed electronically, a whole new world of effects known as "Digital Production Effects"

EKC 001003365 CONTAINS CONFIDENTIAL BUSINESS INFORMATION is opened. Such machines can manipulate live or video taped pictures in an infinite variety of ways, up to five pictures at once can be made to tumble, spin rotate, squeeze, enlarge, compress and reposition with total accuracy under simple control. The creative freedom offered by such equipment allows producers and directors to explore the full scope of their artistic talents and as a result the Quantel equipment is to be found in virtually every major studio throughout the World and the Company are the proud winners of two Queen's Awards to Industry and a National Academy of Television Arts & Science 'Emmy' and the Gold Medal of Montreux.

The viewer at home of course, knows little of the techniques employed reserving his judgement for whether the result is good - or bad - television. This is only proper because the machine must be unobtrusive, contributing to the production rather than replacing it.

The same argument applies in another artistic use of digital techniques in the studio - that of computerized art used for television graphics.

It was also in 1976 that Quantel first became interested in television graphics. The Company had developed, for other markets, a general purpose image processing system called Intellect and in order to test the market acceptability for computer graphics in television, this general purpose machine was given a programme that allowed an artist to draw pictures on an electronic touch tablet, whilst viewing the result in real time on a television screen in front of him. The machine made available a palette of colours from which the artist could choose, and performed all the necessary drawing of lines and filling of colour to provide a high quality, but somewhat stylized picture.

It was the fact that the picture was stylized and therefore intrusive that decided Quantel it must be possible to do better for it was not in the area of simple graphics where the most interest lie but truely realistic picture painting. The audience reaction was firstly that the early machine resembled too much a computer and not enough an artists pencil and paper, secondly the results looked "electronic" without the smooth flow seen in the results of an artist using his conventional techniques.

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It was found that, if an artist has been trained to use his normal tools such as brushes, paints, crayons, pencils and so on, these tools become an extension of himself so if a computer is interspersed between him and the resultant picture the whole creative process can break down.

The task then for the development team was to hide the computer totally so the artist could feel at home. The subsequent research took four years since the "natural look" turned out to be quite elusive.

When finally the correct algorithms were found, the conventional software approach would have been hopeless since so complicated were the calculations that an extremely large computer would have been required if there was not to be a considerable time lag between the artist moving the stylus and the line appearing. To get around this problem, Quantel designed dedicated hardare to perform the function. Paradoxically, this proved to be very cost effective, since not only did it achieve all that was required with the necessary speed, it did it with a relatively small amount of computer power.

The end result of this work was the birth of a second generation system - the Digital Paint Box fine art system. Apart from the absence of a large computer, at first sight the Paint Box hardware appears just like a first generation system. There is still a touch tablet on which to draw with a stylus, a screen to observe the results, a small keyboard and monochrome display to cope with titling and filing pictures, and the ubiquitous small black box of electronics doing the work. The system housekeeping is attended to by a 16 bit minicomputer.

Pictures are stored on a two part digital disc unit. The first part is an 8 inch Winchester-type disc which provides a large quantity of storage with fast access. It will hold approximately 20 pictures, which could be an artist's day's, or week's work. The second part is a removeable floppy disc. Although this has a much slower transfer rate, it is a very rugged and convenient storage medium. One picture can be stored on a floppy disc, which can be removed and filed for future use.

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When an artist starts to use the system, the differences between the Paint Box and first generation equipment becomes dramatically apparent. As he draws, the lines created are completely smooth, even those lying close to the horizontal. The familiar "serrated" electronic lines are not visible - even on close inspection. This is achieved with an image that is beautifully sharp, and applies whatever saturation, hue and luminance level is used. In fact, the deceptively simple task of signing a name on the screen, is so smooth, and the realism so great, that the results are quite disarming.

Perhaps the most striking physical difference with the Paint Box is that the stylus has "feel" - it is pressure sensitive. In a manner similar to a pencil, the harder the pressure on the stylus, the bolder the stroke - the lighter the pressure, the more delicate the shading. Areas covered several times with light pressure become progressively bolder - again, just like a pencil. And, when painting, overlapping colours mix - just like oil or water colour.

The artist is able to control all the functions of the Paint Box by using only the stylus on the touch tablet. When the stylus is brought near to the tablet, a cursor is illuminated on the display screen. As the stylus is moved, the cursor follows the movements. When the stylus is pressed on to the touch tablet, the computer senses this and applies paint to the screen. If the pressure is hard, a lot of paint is applied, exactly like a real paint brush. The stylus has an integral electrical pick-up so that if the tablet sends a pulse in first the X and then the Y axes, and measures the delay until the stylus receives that pulse, the computer can determine the exact position of the stylus on the tablet. The pulses provide the computer with 100 readings per second of the position of the stylus, with an accuracy of 0.001 inches. Faster and finer than the artist ever needs.

To select or change paint colour or brush size, the artist refers to the palette. This palette, or colour mixing area, is called up on the screen by drawing the stylus down the tablet. The palette consists of 20 preselected colours, 12 empty paint pots which the artist can fill with colour as he goes along, a colour mixing area, a selection of four brush sizes, and a painting mode selection. To choose a colour, the artist presses the stylus on the paint pot containing the desired

needed.

colour. Similarly, to select any brush size, the artist presses the stylus on the box containing the brush required. The four brush sizes, ranging from a very fine line to a thick line, together with the

pressure sensitivity of the system, provide all the brush variations

The 20 or so basic colours on the palette are not sufficient for a full painting, so the artist has been provided with a means of mixing colours. If he dabs colour onto the central area of the palette (the mixing area), then selects another colour and applies a thin layer of that across the first colour, the two will mix. The artist can stab his stylus in the area where the two colours have mixed, and pick up the mixed colour. He can then paint with this colour, or he may again apply it to the palette and mix it with another colour, select the new mixture and proceed to paint with that new colour. In fact, there is no limit to the different colours which the artist may mix from the basic set.

This method of colour mixing applies equally, of course, to all brush sizes, having mixed up a colour which he likes, the artist may then put this into one of the empty paint pots for later use. In other words, all the techniques he is used to in mixing oil, water colour or poster paint apply - except he cannot get paint on his hands, spill the pot or allow the tube to run dry!

As well as being able to pick up colours that have been mixed on the palette, the artist can also select colours from the picture itself. As the picture progresses, it becomes easier to pick up a colour from the picture, perhaps modify it with some white or black to change its shade, and then continue painting-in detail with this new colour, while the paint pots are used less and less.

There are three modes of painting available on the system. The first operates like normal paint, in that it mixes with the base colour when applied thinly, and becomes completely opaque when applied thickly. The second is a form of water colour. This can still be applied in a thick or thin film that always remains translucent, so that the underlying detail is not lost. It is used for laying down transparent washes of colour, either as a background, or for tinting and shading detail already drawn. The third mode adds texture to the brush in

EKC OCTOC3369 CONTAINS CONFIDENTIAL BUSINESS INFORMATION much the same way as chalk, allowing the artist to easily achieve a slightly textured effect on paintings.

Once the artist has finished painting, he will, of course, want to store the pictures. To do this, he refers to the menu. This is displayed by taking the stylus to the right towards the menu monitor. The picture menu will appear on the menu monitor screen, and again, by moving the stylus around, the artist can highlight a particular menu selection. If he then presses down with the stylus, that menu option is activated. In this way, pictures are saved, re-called or deleted from the disc to make space for further pictures. A wipe canvas routine is available to give the artist a clean screen on which to start his drawings and, when selecting this, he can mix the exact colour required as background.

A section enlargement facility allows any area of the picture to be magnified to twice its size, enabling the artist to work in much greater detail on that area of the picture. This is extremely useful for achieving high sensitivity in the picture, for example, the detail of a person's eye.

One question that may be asked is, how long does it take an artist to get used to operating the stylus on the touch tablet whilst looking at the screen straight ahead of him? In fact, this hand to eye co-ordination takes only 5 or 10 minutes to master. The artist is then able to effectively stand back and look at his picture with no hand obstructing it, and yet be able to draw in fine detail upon it. When trying it for the first time, the artist also notices that the computer does not impose any style upon him, because his own individual artistic style comes through onto the pictures drawn, exactly as if working with his normal elements.

In broadcast studios, artistscan be employed to save both time and money by using the Paint Box to retouch or modify existing scenery, rather than having it repainted or reconstructed. To enable this, the Paint Box can absorb a live video input. When the live video option is selected from the menu, the picture appears on the screen in front of the artist. The picture is frozen simply by pressing down on the stylus. Having captured the live picture, the artist

EKC GO1003370 CONTAINS CONFIDENTIAL RUSINESS INFORMATION can work on it in the same way as the pictures he has drawn himself. Because of the ability to directly pick colours off the picture area, the artist can choose the natural colours of the picture and exactly match retouched areas with the original. This makes retouching accurate, quick and easy, and allows all the subtle colouring of a real picture to be used. A skilled artist can modify a picture so well, that it is extremely difficult to identify where it has been done.

All the other features of the Paint Box can also be used on the captured input. For instance, the water colour mode could be applied either to tint particular areas of the picture, or as a neutral tone to wash out the background to highlight a foreground object. Similarly, any annotation can be added to the picture, such as arrows, hand writing, or dotted lines.

Other application areas of the Paint Box are aided by the ability to take a picture from disc, modify the picture and store it again. In this way, a library of new pictures can easily be built up. For example, should a map be required for a news item, the artist can recall the appropriate map previously recorded, and add any town names or other markings needed for the current news item. Similarly, a sequence of pictures for use in animation can be stored, or a particular background can be stored and a sequence of foregrounds added to it. These stored pictures can then be edited and strung together on video tape to produce the final animation sequence.

The Paint Box has an RGB output of 24 bit resolution. This was chosen for feeding to the artist's monitor as it presents a clean, sharp colour picture which is much less tiring to use over long periods, than a PAL coded picture would be. Additionally, the Paint Box has a coded PAL output which may be used live on-air, or to feed a video tape recorder, or any other part of a studio.

A special digital output allows the Paint Box to be directly linked with another Quantel digital product. This is the Digital Library System, which is a comprehensive system for storing and presenting still television pictures. The advantage of the link between the

Paint Box and the Library System is that pictures can be transferred from one to the other, modified and transferred back again, all without any degradation, because the video has been maintained in digital form.

A picture captured by the Library System could be sent to the Paint Box for retouching, then returned for storage or on-air use. A picture painted on the Paint Box could be transferred to the Library System to be altered in size, cropped, or set into a montage with other pictures, and returned to the Paint Box as a new input.

Of course, this link is only one step in the direct digital communication between broadcast equipment as the all-digital studio emerges, further enhancing the Art of Digital Techniques.

Richard J. Taylor M.Sc., C.Eng., F.I.E.E. Managing Director Quantel Limited

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A member of the Micro Consultants Grave



(47)

MJH/SEH

Your Ref: 687/SCP/BCSS/RCE/SC

13th January 1982

The British Broadcasting Corporation, Broadcasting House, LONDON, WIA IAA

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Dear Sirs,

Television Centre: Computer Graphics Device Specification No: TC/162

We have pleasure in enclosing our proposal for the above tender.

Quantel would be extremely interested to work with the BBC on this project as the requirements of operation closely resemble the operating characteristics of the Quantel DPB 7001 Digital Paint Box system. Although this is designed as a stand alone art and graphics station, we believe that integration with a VAX 11/750 would enhance its capabilities to match the BBC requirements.

Our proposal shows the compliance of our specification with the BBC requirements, but we would welcome further discussion on the system operational requirements as we feel that the new techniques in the DPB 7001 offer a different approach with several advantages.

We trust, therefore, that the BBC will assess our proposal in this light and we will have the opportunity to present our ideas at a future meeting.

Yours faithfully, for QUANTEL LIMITED

MJ. Maidens

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ingrieering Esbonstonee Masterhaad House, Mevbury, Berssiwe Tegesteston No. 13327: Landen Degistered Office, Metropolitan House, 37 Victoria Avenus, Sauthend-on-Sea, Essee 552 681/ Inscitors: A.C. Michael A. R. Greves, R. J. Teyer: Sacreary; M. Honey

EKC 001010889 CONTAINS CONFIDENTIAL BUSINESS INFORMATION PROPOSAL ACAINST BBC TENDER

Television Centre Computer Graphics Device

Specification No: TC/162

Quotation No: 10608 Q

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SECTION 1: INTRODUCTION

1.

Quantel believe that they can respond to this invitation with a system based entirely around the Company's new Digital Paint Box equipment known as the DPB 7001.

As such, this proposal then differs radically from the invitation in that the approach used to realize the functions may be quite different to those perceived at the time the invitation was written. However, Quantel would hasten to add that in terms of the function supplied, the Company's DPB 7001 will meet, and in many cases far exceed, the wast proportion of the facilities requested.

Appendix I gives a description of the basic concept behind the Paint Box used as a stand alone graphics device. The rest of this document will attempt to answer on a point by point basis the items included in the invitation.

The DPB 7001 has an integral 68000 Computer with Winchester disc store and is normally controlled via a touch tablet modified to give 'feel'. It is proposed that this arrangement be kept but that the Paint Box be interfaced to the VAX 11/750 computer system via a serial link common to the touch tablet and in this way perhaps the software interface is at a very much higher level than originally conceived in the invitation.

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# 2. SECTION 2: RESPONSE TO THE GRAPHICS DEVICE OBJECTIVES

### 2.1 Graphic Primitives

- 2.1.1 Via the serial interface the VAX 11 will be able to 'draw' primitives held in its own memory. However, it is envisaged that many primitives be held in the Winchester disc integral with the Paint Box. These can then be 'called' directly by the VAX 11.
- 2.1.2 Similarly to the previous paragraph, histograms, maps etc. can either be 'drawn' directly by the VAX 11 or called down from the Paint Box integral disc.
- 2.1.3 The organisation of the Paint Box has the power for animation but, there is a speed versus number of picture points trade off. The term 'limited area animation' has been coined for the facility. 100 x 100 picture points every two frames could be accommodated.

# 2.2 Imaging Techniques

- 2.2.1 The Paint Box has both R.G.B. and PAL input facilities working in real time and therefore, can be fully interfaced to the studio system.
- 2.2.2 Currently a picture acquired in the Paint Box would be retained within the system, the Winchester disc or an external floppy disc. In view of the high processing power of the integral 68000 it is assumed that this satisifies the requirement, if not them a direct interface between the 68000 and the VAX 11 could be proposed.
- 2.2.3

## 2.3 Bit Planes

2.3.1 The memory organisation within the Paint Box permits complete pictures or portions of pictures to be manipulated and up to two complete pictures can be accommodated.

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# 2.4 System Interfacing

- 2.4.1 The proposal is that the interface to the VAX 11 will be via a serial link similar to the graphics tablet and thus the software interface is at very high level.
- 2.4.2 Normal:communication with the Paint Box is via the graphics tablet but command terminal is also available.
- 2.4.3 The video output produces R.G.B. and Broadcast Quality PAL.
- 2.4.4 External locking is achieved via a Colour Black signal.
- 2.4.5 The Paint Box will accept non-synchronous wideo inputs.
- 2.4.6 The output timing of the system is adjustable over + and two microseconds.
- 2.4.7 The internal sampling of the system is Y U V and 13.5 MHz, 6.75 MHz and 6.75 MHz respectively. It conforms to the ESU standard (CCIR 11/5031-E) but currently no interchange conventions exist and therefore, the actual digital interface itself can only be proposed when the appropriate standards have been determined.

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# SECTION 3: RESPONSE TO FUNCTIONAL SPECIFICATION

#### . 3.1 Resolution

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- The equipment conforms to the new digital 3.1.1 standard (13.5 MHz Y, 6.75 MHz U & V).
- 3.1.2 Small changes in number of picture points i.e. 720 to 768 can be accommodated by a change in firmere.

#### 3.2 Graphics Mode

- 3.2.1 The Paint Box concept permits full local processing of image and graphic data.
- 3.2.2 Commands from the VAX 11 would be sent via the serial interface.
- 3.2.3 (a) Shape generation is possible within the Paint Box including straight lines either singly or joined-up, rectangular, circles and eclipses.
  - (P) Full character generation is available. Characters may be positioned individually or in strings. Fonts can be those supplied by Quantel or generated by the B.B.C.
  - · (c) Display environment commands are inherent within the Paint Box to determine type of operation being used, background colours, type of brush if painting is being used etc.
  - Cursor status and 'invisible' or hidden grid (b) lines are definable.
  - (e) No facilities are included for arithmetic or logical data manipulation.
  - (f) No facilities are included for display listing.
  - Timing and Interrupt for synchronizing events (g) to frame of field pulses is available.
- 3.2.4 The following integral facilities are provided with the Paint Box.
  - **(a)** Repositioning.
  - (b) Size change.
  - (c) Rotation.
  - (b) Cropping or the selection of a portion of a picture.

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- 3.2.5 Only high quality characters are generated offering the full quality possible previously only from a camera and artwork.
- 3.2.6 Fonts will be provided by Quantel, additional fonts exploring the full PAL capabilities may be simply developed by the B.B.C. and held in the Winchester disc or on floppy disc.
  - At least four fonts will be capable of being stored in the Paint Box.
- 3.2.7 Conventionally, all graphics activities will be accomplished using fonts within the Paint Box. Thus the VAX 11 would cause the appropriate font to be loaded into the Paint Box Winchester disc and then high level commands via the serial interface would select the font, its size, colour, proportional spacing, positioning and of course, the characters forming the words.

100 characters per second can be accommodated and sets changed during the vertical interval. . Hardware scroll is limited to integer lines or picture points but software scrolling can be fully interpolated within the limited area animation parameters mentioned earlier.

#### 3.3: Imaging Mode

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- 3.3.1 The Paint Box is capable of accepting live input in either RGB or PAL and can operate asynchronously. Both field and frame grab is possible, if monochrome is required a separate software routine for removing colour is available.
- The picture stores in the Paint Box are organised to the new digital standard as Y U V at 8 bits each. Input RGB is thus matrixed to Y U V before being passed on to the store.
- 3.3.3 Full paint and cut and paste facilities are available.
- Full storage of 'cut' or 'pasted' or 'cut and pasted' 3.3.4 patches is possible.
- 3.3.5 Routines can be supplied for 'pasting out' of patches.

#### 3.4 Bit Plane Arrangements

- Total Addressable space corresponds to approximately 1440 x 600 x 8 bits for luminance and 720 x 600 x 8 bits each 3.4.1 for the two colour difference channels.
- 3.4.3 A wide variety of reconfiguring of the addressable space is possible.
- 3.4.4 Sections of the addressable space are repositionable with respect to the other.
- 3.4.5 Pictures up to twice the actual displayed area can be accommodated.
- Portions of the addressable space can be 3.4.6 allocated to hold typeface or symbol type data.
  - Smooth scrolling or zoom would be accommodated with the limited area animation mode. Full size scrolling is possible but only in line or picture point integers.
  - All modes of the Paint Box are software controllable.

#### 3.5 **Video Output**

- 3.5.1 The Paint Box has two PAL outputs and one RGB output available when the unit is being used manually from the graphics tablet the cursor and palette area have to be displayed. However, when the unit is being operated via the YAX 11 there is no necessity for such facilities and a software switch would be incorporated to allow these to be switched off and just the 'naked' graphic displayed.
- 3.5.2 No look-up tables for colour mapping are available.

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SHO

#### ADDITIONAL SOFTWARE DEVELOPMENTS SECTION 4:

- Quantel have built a reputation on upgrading and 4.1 continuing to provide additional features on equipment once delivered. Hany additional features will be possible on the Paint Box and thee will be made available to the B.B.C. as they are generated. In addition it is hoped that there will be an opportunity to work with the B.B.C. engineers as they determine new requirements.
- 4.2 The Paint Box concept is designed to allow the B.B.C. to generate their own extra graphics primitives. These can be stored on the Winchester or on removable floppy disc.
- One week of formal training of B.B.C. personnel has been included in the costs. However, it is hoped that 4.3 frequent informal contact will be possible.

- 5.1 The programme for the Paint Box resides on the Winchester and all work can have back-up on the disc.
- 5.2. Cycling the power of the unit will cause the programme to restart.
- 5.3 A maintenance and operators manual will be available for the equipment.

26315

SECTION	6:	HARDWARE	REQUIREMENTS

- 6.1 Environment and Safety requirement; Item 6.1.1 & 6.1.2 of the invitation are accepted.
  - Total power consumption is less than 500 watts. Operating temperature 5°c to 30°c. Humidity 90% non condensing. Equipment will be 19" with side mounting 19 " high.
- 6.2 Video Output

Accepted. 6.2.1

6.3 Maintenance

> Quantel can offer maintenance service and would welcome further discussion to agree a mutually acceptable schedule.

> > EKC 001010899 CONTAINS CONFIDENTIAL BUSINESS INFORMATION

7.

#### SECTION 7: SUMMARY

The proposed solution to the B.B.C. requirements for a Computer Graphics Device, as has already been explained, differs considerably from the technique considered when the invitation was conceived.

However, Quantel suggests that their existing hardware, the DPB 7001 Digital Paint Box - can meet virtually all the B.B.C. requirements, albeit from a different direction, as well as offer the facilities of a full manual graphics package and recommend that the B.B.C. evaluate this proposal in conjunction with their requirements.

Claims of 'Breakthroughs' and 'Revolutionary Approach' are bandied about with elecrity in this industry but it is felt that the DPB 7001 is indeed a revolutionary approach and in terms of the quality of images produced, is a genuine breakthrough.

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MEMORANDUM

TO: Richard Taylor

a famil

FROM: Tony Searby

DATE: 2nd March 1982

### SUBJECT: DPB 7000 Sales Brochures

No doubt the large networks will buy one or more Paint Boxes because it is new and good. However, if we want to achieve the volume of sales to these and the smaller stations, we must emphasise the points which we have been aiming at in the last nine months of development:

- Speed and ease of producing artwork.
- 2. Can be used effectively by less able artists (of which there are rather more than the highly skilled artists).

These aims are achieved by:

- The graphics facility, allowing very rapid and easy production of charts, diagrams and maps for news items; and the ability to take in and use colour source material allows dramatic use of relevant scenes as backgrounds for the charts.
- 2. The cut and paste facility, allowing an artist to make new composite pictures quickly using the width of pictures drawn previously by himself or other artists with different skills.

To this I would add these additional salient points.

- 3. Even though an artist may not be a 'fine art' painter, the Paint Box's ability to be used to produce the most delicate and artistic of pictures, means that he is never frustrated by the limitations of the hardware, but may create graphic work or paint to his own abilities.
- 4. Because the Paint Box can store the picture at a particular stage, the artist is free to try out the next stage and yet revert to the stored picture if he is not satisfied. This technique which is not possible using conventional media allows more experimentation and consequently freer expression in the final picture.
- 5. Since video as an output media is a light source, the pictures can have colours with more life and luminosity than can be achieved with paint and paper (being careful of illegal colours, of course!).

I trust we can include these themes when writing the brochures.

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MICRO CONSULTANTS, INC.

246) EAST BAYSHORF ROAD STREET PALO AFFO CALIFORNIA MAGE PROFESTIONE BOX MASER BOST PROFESTION AND ALLEY ASSE

Quotation No. PF-301-A

Date March 4, 1982

The Weather Channel
2840 Mt. Wilkinson Parkway
Suite 200
Atlanta, Georgia 30339

Attention: D. Thompson, V. P., Engineering

EM	γ.	MODEL NO.	DESCRIPTION	UNIT PRICE	TOTAL
		DPB 7000	Digital Paint Box Telegraphics 7000 with following features:  * Completely smooth line drawing for all levels of luminance, saturation and hue.  * Freedon to select as many shades of color and levels of luminance at the same time on any picture as allowed by the NTSC system.  * Ability to mix colors and luminance level in a manner analogous to a normal artist palette.  * Choice of a wide variety of brush shapes and sizes. Lines can be drawn from a width as small as one quarter of a TV limor as large as one inch.  * Choice of a wide range of styles of painting, from oils and poster paint through water color and gels to pencil and crayor or even an air brush.		\$125,000.00

DELIVERY: June 30th 1982 or sooner

Page \_1\_ of \_2\_

By Paul Fletcher

TERMS:

10% down with order

Less 5% 10 days; 2% 20 days; Net 30 days,

after delivery

F08:

Palo Alto, Calif.

Title Regional Manager

PRICES QUOTED ARE VALID FOR 10\_DAYS

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EKC 002000551

Quotation No. PF-301-A

Date March 4, 1982

Page 2 of 2

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EKC 002000552

# THE WEATHER CHANNEL

THE WEATHER CHANNEL 2840 MT. WILKINSON PARKWAY, SUITE 200 ATLANTA, GEORGIA 30339

Division of LANDMARK COMMUNICATIONS, INC.

	PURCHASE ORDER NO:	38-1	This number must appear on all invoces, correspondence, contempts, Packing Shps, Bills of Loding and Express Receipts				
	Dept. No	20					
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40	To MCI/Quantel		Ship-Invoice 4 THE WEATHER CH				
2 2	. Post Office Box	<b>#</b> 10057	2840 Mt. Wilki Suite 200 Atlenta, Georg	•			
3	2483 East Baysh	ore Rd. S. 209	ATT: Accounts				
	Palo Alto, CA	94303	Ref. Pur. Orde	r No. as above			

Please Enter Our Order For The Following:

ITEM	QUA	YTİTY		DESCRIPTION	UNIT COST	AMOUNT
	Ordered	Received				
			Box	1 DPB 7000 Digital Paint as covered in MCI quotation PF-301-A		
				Total Purchase Cost	-	\$125,000.0
		-	Terms:	10% down with order Less 5% 10 days; 2% 20 day Net 30 days after delivery	•	
				Total 10% downpayment		12,500.0
			1	Unpaid balance		112,500.0
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AUTHORIZED (Department)

By: Sille Hamman

Copy To: Vendor White

Approved

By: TRANS ACMON

Department Canary Authorized Signature

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Richard- This is for your approval hefere.

The PAINY BOX
Quantel's DPB 7000 Series Digital Paint Box

HS 1140

Oscallent - veg mini prods on roge 6a,809.

The complete system for creating television fine art-and-graphics

EKC 001018471 CONTAINS CONFIDENTIAL BUSINESS INFORMATION A complete graphics studio on-screen - Quantel's Paint Box

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Quentel's DP8 7000 Series Digital Paint Box is a unique creative tool for artists who need to work freely and directly in the television medium. True to Quantel tradition, this is not just enother video graphics machine — the Paint Rox is a technological breakthrough; a second generation system. The totally natural look of its pictures alone sets it apart, while its versatility is, quite simply, marvellous.

In the Paint Box, Quantel has constructed a canvas, with paints and its own mixing palette, as well as all the tools and facilities a graphic artist could need and more. Whether creating fine art on the TV screen itself or capturing and freezing video; whether combining its own library stills or perfect retouching of any picture; and whether producing stencils or adding graphics and text with the power of electronic scissors and paste, Quantel's is indeed the ultimate Paint Box.

Yet the technology behind this machine is completely hidden, allowing the user to feel completely at home and to concentrate on his creative work. So that stunning effects, including brilliant animation, can be achieved quickly and easily, saving considerable time and giving excellent results.



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# Total fidelity

In appearance, the Paint Box gives little hint of its underlying power - it looks similar to first generation systems but without a large computer. There's a touch tablet on which to draw with an electronic stylus. a TV screen acting as the ideal cenvas, a keyboard for occasional use, a Winchester disc for picture storage, and Quantel's powerful brown box, quietly handling all the work. But when the artist starts to use the Paint Box, he finds that it is quite different, and that the images he can create are perfectly natural.

This is true second generation artistry. With the Paint Box, lines drawn by the artist are not subject to the all too familiar serrated look; even close to the horizontal they remain perfectly smooth. To make the artist more at home, the atylus has 'feel' - it is pressure sensitive, and the more pressure is applied, the more paint is deposited, just like a real brush. And where lines cross, the paints mix to form the appropriate colour, just like real paints. In fact, its behaviour is so natural that one rapidly forgets that this is electronic, and not real paint; except that here there is no mess and no risk.

Quantel's Paint Box has been designed for this natural look. It provides all the timis, turns and brightness levels observed in any real painting or camera scene. Equally, on the text generation side, a wide range of crisp, beautiful fonts is provided, which are quite unlike the harsh typography typical of simple electronic character generators.

#### Unmatched versatility

As the artist works with his brush, so he controls the Paint Box with its atylus and touch tablet - its position on the screen canvas being shown by a cursor. A stroke sideways off the tablet brings up the menu of artista' facilities, while a vertical stroke replaces this with the artist's palette, on acreen.

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Facilities provided include painting, graphics, text, cut and paste and stencil operations, as well as the picture library. Selecting a particular mode is achieved simply by touching the appropriate title on the menu, with the stylus.

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When in Painting, the Paint Box provides a range of brush sizes and paint types from oils to chalk, and even to air brush, to match almost every painting style. When in Graphica, it is quick and easy to draw everything from straight lines to ellipses - filled or outlined. And the results are always displayed first, before being fixed over the background so that trial and error is simple.

Equally, when going to electronic <u>Cut and Pasts</u>, nothing need be permanent - any number of different positions, sizes, orientations and colours can be tried, until the desired effect is achieved. Using the Air brush, these shapes can also be given soft edges allowing, for example, the outline of a cloud or a person's hair to be brought cleanly out of a picture. Similarly, in Stencil, any shape can be created and filled with paint, graphics, text or existing library images.

Un Quantel's Paint Box any of these facilities can be combined with any other, allowing the artist to create exactly the picture combination or effect he wants. The artist is further aided by the integral library, which provides storage for pictures, parts of pictures, stencils and cutouts, thus enabling him to construct any composite from stored images.

### A live graphica studio

Quantel's Faint Box will accept live video inputs either in composite form or in RGB and this, too, can be frozen to form the basis of artwork. The Paint Box can also be integrated into the TV system and can easily transfer pictures to the Quantel Digital Library System , without degradation, via & digital link. Additionally, it has a video output for live transmission to a vision mixer. The Paint Box thus has full, live TV graphics studio capability.

So, whether the need is for a montage of people, places, graphics and .... text for an imminent news story, or an original oil painting with beautiful hand drawn text for a trailer; illustrative graphics for education, or interesting enimation for visual side; the Paint Box provides the key to excellence and speed. EKC 001018474

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# A master stroke for fine art - Quantel's Paint Box

On selecting Paint, the artist enters a world of creative art previously impossible direct on the TV screen. Not only is the painting quality of the system unrivalled, but its versatility of style simply has no equal.

Choices include oil paints, water colours, chalk and air brush, all provided to achieve limitless moods. And all these styles are also evailable for use with graphics, cut-outs, atencils and characters. Quantel's Paint Box also provides five brush sizes for each style of painting and the artist interacts with these tools and his range of mediums vis the touch tablet and stylus.

In the Paint mode, the stylus lays paint exactly as does a brush with traditional oils. Strokes with the stylus on the touch tablet are every bit as fluid as its brush counterpart; paint appearing on the canvas is denser where applied heavily and trails off as the pressure is relexed. Paints mix when applied thinly, but as the pressure is increased, the newly deposited paint becomes opaque - just as one would expect with normal painting.

Quantel's <u>Wash</u> mode provides another style of painting which is similar to conventional water colours. Paint laid down always remains translucent so that underlying detail is never quite lost. Using this mode, an artist can also deposit a completely smooth wash of any tone over the full canvas to provide a perfect background for 'water colour' painting, graphics and text.

The converse of this is Shade, where the tonal range is controlled. This lends itself to tinting and shading details already drawn on the canves, say, in the normal Paint mode. A fourth painting mode, called Chalk, is designed to add texture to the brushed colour. Results are similar to those achieved using chalks or crayons. Painting in this alyle gives the superb depth characteristic of the medium.

Next is Quentel's Air Brush mode, which is as easy to use as the 'water colours', 'crayons' and 'oil paints'. This, too, matches the conventional tools used in the studio, providing that perfect softness of transition between the various tones, in a manner only possible with this EKC 001018475 technique.

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Another important facility is the <u>Magnification</u> capability which allows the artist to treat the TY screen as an expandable canvas - he can pick any area and magnify it to twice full size. This is particularly useful for detailed, close work.

'A stroke of the stylus downwards off the Paint Box touch tablet brings up the artist's palette in the lower portion of the canvas. This features 35 pre-selected colour pots chosen by the artist from a large colour bank, or it can be a palette complete with mixed colours, from a library file. Any of the pots may be filled with any paint mixture. The palette also provides a mixing area, a brush size selection panel and a bar indicator displaying the precise colour selected.

Using the stylus, paints can be mixed simply by brushing together colours selected from the pots or from the mixing area. If the particular tone required is found between several colour strokes, it can be picked up simply by dabbing the stylus literally into the mixed paint at that precise point.

Choosing a colour does not stop at the palette. Colours can also be selected 'directly' off the picture, via the tablet. Indeed, as an artist progresses with a painting or graphic, the palette will be needed less frequently since paints can be mixed on the picture itself. A touch on the picture thus provides an exact match, instantly, for progressing with any part of a painting. Besides dramatically speeding up the creative process, this facility is also particularly useful for retouching work - whether from frozen video, paintings, graphica or photographs.

#### A retoucher's dream - Quantel's Paint Box

Since the Paint Box can accept video feeds, the artist is free to capture and freeze any live TV image. From this point on, the picture behaves like any other created on the Paint Box. So, applying any of the range of brushes, the artist can then retouch the picture, using existing acreen colours for a perfect match, modify it using the palette if necessary, or augment it with graphics, text of any kind, or even portions of other pictures. Further, using the live video feed unfrozen, and mixing with frozen video, or painted or graphic pictures, results in superb composites previously only possible in the film studio.

EKC 091018476 CONTAINS CONFIDENTIAL BUSINESS INFORMATION With Quantel's Paint Box, TV pictures can now be retouched or modified in any of these ways without resorting to photographic processes. And, with the shear quality of images constructed on the Paint Box, artists can now undertake work that would have been virtually impossible by other means — and do it very rapidly.

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#### Superb graphics design - Quantel's Paint Box

Selecting <u>Graphics</u> brings the power of <u>Quantel's Paint Box</u> to the graphics designer. Facilities provided include comprehensive help with drawing separate or connected straight lines, rectangles, circles and elipses, simply by touching the appropriate title on the menu.

The graphics artist can easily position and size these freehand anywhere on the screen, using the stylus, or can ask the Paint Box to ensure that all lines drawn are horizontal or vertical only. Further, he can define a grid of any size, and the Paint Box then fits graphics accordingly - displaying the result, as always, before the artist need fix it in position.

Line width can be selected from the brushes on the painting palette.

Additionally, colours can be mixed and used with—all the facilities.....

provided in the <u>Paint mode</u>.

When drawing straight lines, the artist first presses his stylus down on the touch tablet to fix one end. The Paint Box then provides an elastic line (of the colour, texture and width selected) seemingly attached to the stylus tip, which the artist can move around the picture, at will. The other end is fixed simply by again pressing the stylus on to the touch tablet.

Drawing rectangles, circles and allipses is equally easy, the stylus being used to define opposite corners of the box containing the shape. Here, the Paint Box shows the graphic box as an apparently elastic figure, moving wherever the stylus travels, until fixed by the artist.

Shapes created can be filled automatically with any colour and constrained to any grid chosen by the artist. And all graphics are produced to the high quality embodied in the fine art painting aspects of the Paint Box, courtesy of Quantel.

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Since all modes can be combined, the scope for creating original images in the broadcast TV world is impressive. Topical and unusual graphics composites can be drawn quickly and easily to illustrate, for example, news, financial results, employment trends and statistics. Thus, here too, Quantel's Paint Box is the ideal creative tool for the rapid generation of imaginative graphics.

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#### Perfect text deneration - Quantel's Paint Box

For titling pictures and graphics of any kind, Quantel's Paint Box includes a comprehensive <u>Text</u> mode. This comprises a wide range of professional fonts of the highest quality and in an infinite variety of sizes. Again, the full spectrum of <u>Paint</u> mode colours and facilities is available.

fonts can be selected by name or browsed from the library and may be typed out in several ways. A separate, physical keyboard is provided and the <u>Text</u> menu also displays a mimic keyboard in the lower part of the screen, together with a message and text area.

The artist can create text using the conventional keyboard or the atylus with its acreen keyboard. As he proceeds, the string of characters will appear in the message area on the menu, and can then be taken as a whole and positioned, using the stylus. Here, proportional character spacing, including even kerning, is sutomatic.

Alternatively, the artist can take each character from the menu keyboard and position it individually on the canvas, rather like rub-on lettering, the stylus tip holding the letter on-screen until it is stuck down. Here character spacing is entirely at the discretion of the artist.

Quantel's Paint Box also provides a comprehensive range of aditing facilities for type setting.

Having positioned the text, the artist can create effects such as drop shadow and blind embossing automatically, or manually, using any colour.

Many more special characters and artists' techniques can be developed and at all times, artwork is of the high professional standard set by...

Quantel's fine art.

Thus, using the Paint Box, news, trailers, credits, sports results and the whole range of TV broadcast pictures; can have restrict any kind, and logo types, added both cleanly and very rapidly, without the need for laborious conventional artwork preparation.

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#### Cut and paste at its best - Quentel's Paint Box

In <u>Cut and Paste</u>, Quantal has taken all the picture creativity so far embodied in the Paint Box, and added a major facility - electronic scissors and paste. Since this feature is electronic, rather than physical, pictures of any kind can be cut, re-sized, moved around and fused in any way, very rapidly and with excellent results.

Pictures stored in the Paint Box library, whether paintings, graphics, or combinations of both, as well as frozen video, can be taken by the artist and any part 'cut' away to form a cut-out. The cut-out is created simply by drawing around the area of interest. But, unlike ordinary scissors, the electronic version can cut an edge as hard or soft as required. Selecting the air brush, for example, results in a mixing of the cut-out edge area with the background, so that aircraft propellers... create a semi-transparent swirl, and hair detail on a portrait can have a natural, soft edge.

The quality of the Paint Box cut-out is, of course, identical to the original video, being an exact copy lifted from it, and its shape can be as simple or complex as required. Once defined, the cut-out image itself can be picked up and moved around the canvas at will, in real time, affectively staying on the end of the stylus. If desired, its mirror image can also be created instantaneously. In this way, the artist is able to position the image and to see exactly the affect he is creating, before 'tacking' it to the picture, with a press of the stylus.

when

Additionally, by using the separate joyatick provided, the cut-out can be re-sized, and rotated to any desired angle in much the same way as is achieved using a rostrum camera, but live, directly on acreen. Unce the artist is happy with his cuts, he can confirm the pasting of his cut-out to the background simply by touching the stylus to the 'stick' command on the menu. The cut-out is then blended permanently into the background with an accuracy better than can be achieved using flat artwork and without the associated problems.

Any picture can be used as a background over which the cut-out can be moved to create new pictures or combinations of graphics, frozen video, paintings and text. Quantel has thus unleashed the graphic artist's creativity and dramatically enhanced his speed of assembling, for example, complex composites from a whole range of stored and re-sized images.

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#### Electronic stencils for unbeatable TY art - Quantel's Paint Box

A further novel facility is the Paint Box's ability to treat any cut-out shape, whether hard or soft edged, as an electronic <u>Stencil</u>. Once created, a stancil can be used as drawn, or as its converse. And if the artist selects the air brush option, the Paint Box becomes the exact electronic equivalent of a mask and apray gun.

Of course, the scope of this mode widens considerably if the artist chooses to use it in conjunction with the full range of painting, graphics and text modes. It widens again if he calls up an existing picture from the built-in library, using this as the new background for stencil work.

Further, since the picture beneath the electronic stencil itself remains unchanged, it is a simple matter to create magnificent three dimensional effects with both foreground and background. Employing the cut and paste routine again, in this case, also allows the artist to animate a picture, the Paint Box providing the complete creative tool to free his imagination.

In fact, Quantel's Paint Box, opens the door to a whole world of animation effects. It's perfect colour matching promotes superb cell animation. But it's sheer power also provides mervellous computer-assisted animation, allowing, for example, oil barrels on a graphic to grow, ships to sail and our squirrel to stroll through the woods munching nuts!

Naturally the artist is also always free to produce frame-by-frame animation directly on the Paint Box.

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#### complete picture library - Quantel's Paint Box

ince the graphic artist normally needs to access a number of different interes during his work, Quentel has included a picture <u>Library</u> with the <u>last low</u> to provide a fund of pictures. This comprises a Winchester discerive, which is able to store a combination of some 200 pictures, parts of pictures, stencils, cut-outs and artists' palettes. Pictures can also be transferred to floppy disc, on a one picture per disc basis, for longer term storage. Being digital pictures, these are recalled to the screen in perfect condition.

Selecting the library mode brings up the appropriate menu with its <u>Browse</u> 'key', keyboard and message area. Using the stylus, the artist can the browse key to view the contents of the library in groups of 12 pictures. At any time he can touch a picture of his choice, via the tablet, to call it up to full acreen size. Alternatively, he can see they title and the Paint Box then provides a list of pictures, whose title include the key word entered. The artist simply touches the relatible to obtain that picture.

on by the artist. Having progressed with the picture or made some alterations or another composite, the new picture can itself be saved away to another library file. On Quantel's Paint Box, pictures can be saved at any time, giving the artist confidence to try several effects without the worry of destroying valuable original work.

The Paint Box library can be extended by adding Quantel's DLS 6001 Digital Library System, either connected directly to the Paint Box via a digital link or by video input. This also provides full, on-air presentation facilities.

Quantel Limited adheres to a policy of continual product advancement and reserves the right to alter specifications without notice.

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The journal of broadcast technology

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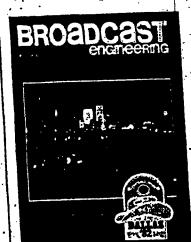
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THE COVER this month is adapted from NAB brochures promoting the organization's 60th annual convention and litternational exposition. The convention's theme is "The Sky's the Limit"...in radio...in television...in engineering...in new technologies...and in government regulations. NAB-82 will help bloadcasters make the transition as new developments in technology and changes in regulations reshape the traditional roles of managers and engineers in broadcast stations.

The cover artwork was copied and eproduced here with the permission of NAB. Special recognition goes to artist Lynne Komal, Watermark Design, Alexandria, VA, for creating the art in cooperation with the NAB.

#### NAB-'82/Dallas

Broadcasters' main convention Dallas Convention Center, April 4-7,-1982

#### NAB CONVENTION GUIDE

Most of this issue is devoted to pre-show coverage of NAB-'82/Datlas. Extensive research went into compiling data from manufacturers exhibiting at this year's convention to make our exclusive coverage as detailed and complete as possible. The results, in terms of articles and special sections, can be seen in the contents listing to the left. This special coverage will help attendees play for the show or make it easy to obtain data on new products for those who cannot make it to Dallas. In any event, look for BE's axionsive show wrap-up in the June

NEXT MONTH our issue will include:

- Audio technology-Redio sound quality
- SMPTE Winter Conference highlights
- INTV Conference highlights Special cable engineering

graphics

#### calendar

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April 2-3

The International Association of Satellite Users (IASU) Second Annual SATCOM Conference will be held at the Hyntt Regency Hotel at Reunion in Dallas, TX. This conference, which precedes the National Association of Brondcasters Conference that opens April 4, will feature programs by experts and opinion leaders that will interest satellite users.

SATCOM '82 will bring the realities of new satellite application advances to the forefront. Topics include direct broadcast satellites, interconnection of satellites and interactive cable systems, assessments of teleconferencing, enhanced broadcast station services, training and educational applications to military, business and medicing.

April 4-7

Dallas will be the site of the 60th Annual National Association of Broadcasters Convention. The convention will feature radio seminars, discussions of TV trends, demonstrations of innovations in television, exhibits, and a spouse program. Glen Campbell will perform on Sunday, April 4 and Jonathan Winters will appear on Wednesday, April 7. For more information, contact NAB, Convention Information, 1771 N.St. NW, Washington, DC 20036.

April 20-23

The Institution of Electronic and Radio Engineers will hold its Fourth International Conference on Video and Data Recording at the University of Southampton, Southampton, England. Aimed at engineers and physicists in manufacturing and user industries and universities, 45 papers will be presented in four days by nuthors from France, Germany, Italy, Japan. The Netherlands, United Kingdom and the United States.

A feature of the conference will be a forum on digital standards. Seven manufacturers and broadcasters from Europe, the United States and Japan will put forward their own positions. The speakers and audience will then take part in an open debate. A trade exhibition will be held in conference with the conference. Co-sponsors of the conference are the AES, IEE, IEEE, JoP, RTS and SMPTE. More details and registration forms are available from the Conference Registrar, IERE, 99 Gower St., London WC1E 0AZ.

April 29-May 1

The 1982 Electronic Distribution Show and Conference will be held in the New Orleans Hilton Hotel in New Orleans; LA. The conference will encompass the Electronic Distribution Show trade exhibits, the EDS '82 Industrial Distribution Conference, and the Third Annual National Sound and Electronic Systems Conference (NSESC). The NSESC encompasses the EDS exhibits as well as marketing and technical sessions for contractors sponsored by the National Sound and Communications Association in conjunction with the Show Corporation.

The National Electronic Distributors Association will conduct industry seminars in conjunction with EDS. NEDA's activities will begin with an "Outlook" program on the future of industrial distribution during the afternoon of Wednesday. April 26, the day before the show opens. Concurrent programs for distribution management will be conducted each show morning from 8:30 to 9:45 a.m. In addition, NEDA will conduct a separate

educational program for distributor middle management personnel (sales and purchasing) from 12:45 to 2 p.m. Friday.

For more information, contact David L. Fisher, executive vice president, Electronic Industry Show Corporation, 222 S. Riverside Plaza, Suite 1606, Chicago, IL 60606; [312] 648-1140.

May 3-5

"Cable Delivers!" will be the theme at the National Cable Television Association 31st Annual Convention and Exposition in Las Vogas. NV. Exhibit hours at the convention will be increased 24% from last year. In addition to hundreds of exhibits plauned for the convention at the Las Vogas Convention Center, there will be dozens of panels featuring technical, management and programming discussions. Daily luncheons will include guest speakers on topics with to the cable industry.

Exhibits featuring cable programming and hardware will open with a special ceremony at 11 a.m. on May 3 and close at 6 p.m. that day. They will be open from 8 a.m. to 6 p.m. May 4 and 5. A reception and sneak preview of exhibits is set for Sunday evening, May 2.

A dinner dance and national awards presentation will conclude the convention on May 5. Early registration will begin on May 1. Reservation forms are available from Trade Associates Inc., 4701 Willard Ave., Suite 105, Chery Chase, MD 20815-4697, Space reservations cannot be made by telephone.

Muy 3-6

Video 32. Program International will be held in Berlin in the form of a congress with an exhibition and music market. It will deal with questions and problems concerning video software and is intended particularly for the specialist trade. The International Music Market Seminar Berlin 1981, which took place in September 1981, will be dontinued within the framework of this event.

May 8

The Chicago section of SMPTE will hold its Seventh Annual All Day Meeting at the Ramada O'Hare Inn in Chicago. This meeting will feature presentations on film and related technologies. Last year's program contained presentations on new film stocks, power-sources for location lighting, super-16mm production, color dye stability and the interface of film and video.

Planning for the program is in progress. Those interested in submitting papers for consideration should confact: Program Chairman, Kenneth-R. Knaus, Eastman Kodak Company, 1901 W. 22nd St., Oak Brook, II, 60521; or Publicity Chairman, Edward Blasko at the same address.

June 4-6

The forthcoming premier AES conference, titled "The New World of Digital Audio," will be held at the Rya Town Hilton, Rya, NY. The areas to be included as follows: an overview on the present state-of-the-art; the digital disc; high density magnetic recording; high density optical recording; digital data protection; digital data preservation; error correction; encoding and transcioling; and digital music. Also, planned participation by experts in the field of the digital disc from Europe

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### Quantel Gives NY Preview of NAB Display

MCI/Quantel gave a preview in New York last week of the equipment they'll be bringing to the NAB.

As a means of supporting its video customers, Quantel moves into the digital audio field with the introduction of its DAS 175 Digital Audio Synchronizer. It is a delay system designed to compensate for video delays introduced by the use of framestore products. Two video feeds are passed through the DAS 175: one is the input video to the framestore device to be compensated for; the other is either the output video or reference locking video from the safe framestore. The DAS 175 contains two sync separation circuits that measure the difference between the two feeds, using this signal to control the delay. It is this concept that allows the DAS 175 to be used with any manufacturer's synchronizer. Sophisticated processing within the machine allows correct up sync to be maintained through hot cuts and synchronization cross-

Also headed for Dallas is Quantel's DPB 7000 Digital Paint Box, first shown at last year's NAB. The Paint Box is a multifaceted tool able to fulfill all the requirements of the graphics studio: creating fine art free-hand drawing of quite breathtaking fidelity; retouching real video pictures; offering standard graphic routines for 'painting by numbers'; providing superb quality fonts for character generation; containing its own library of pictures; allowing composition of graphics by the assembly of several different pictures; graphic primitives; repositioning, re-sizing and re-orienting those pictures; producing soft blending of images; building stencils; and allowing animetion of portions of the pic-

tures. Apart from the absence of a large computer, at first sight the DPB 7000 paint box hardware appears just like a first-generation paint system. There is a touch tablet on which to draw with a stylus, a screen to observe the results, a small box of electronics doing the work, and a Winchester disk storing a library of pictures.

Quantel also demonstrated Mirage, an effects machine that the company's director, Richard Taylor, refers to as "the ultimate illusion." Among the machine's capabilities: absolute fidelity of normal and manipulated picture; pictures can be compressed, enlarged, tum-bled, spun and split; images may be rotated and put into perspective; pictures can be rolled up the rotation of a cylinder at any perspective so the viewer can look down it or see it at an angle; genuine page turns; swirl a picture like a whiripool; transcends digital effects and enters the world of animation.



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unrivalled expertise in every department. Here are some of the varied activities we have been involved



#### A NON-STOCK ITEM

We illustrate a purpose built, tailor made six machine editing copying system recently supplied to a government de Our customer kindly wrote "I thought you would like to know that we are very pleased with the operation of the Six Bank Copier you have just delivered to us. Its flexibility, which was something of a headache for you is proving very useful to us. It has been a very happy working relationship between us and yourselves.



#### **AMERICAN EXPRESS GO** VIDEO WITH WORLDWIDE **NETWORK**

TeleTape Video were recently awarded the international Video Network contract for American Express. T.T.V.'s vast experience in multistandard worldwide systems proved invaluable in clinching the deal, in the face of keen international competition. Our experience in designing, shipping, installing and providing back-up worldwide video networks is second to none. Whether your branch is in Barnsley or Bangkok we can

#### SYSTEMS ENGINEERING

T.T.V. Systems Division recently handed over this standards converter system to a Middle East client as part of the Peacehawk programme. Our client said

Twant to put in writing our appreciation of the first class job that TeleTape Video have done on this system. It has been a real pleasure to work with Norman Hunter and his associates and their professionalism, dedication and lexibility are much appreciated.

I look forward to co-operating on many more projects in the future."





#### TELETAPE VIDEO ANGLIA

T.T.V. have at their branch in East Anglia a team of specialists headed by Peter Noble providing all the same T.T.V. London based services to East Anglia, the Midlands and Northern England. In addition we have at Anglia full B. V.U. production facilities and can provide colour O.B., Editing. Telecine, Duplication, etc. We offer top quality production at the most economic cost. For help and advice on any requirement contact Peter, Noble on 0223 / 244082 and 247427.





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